



The District CTO in the Year 2012

By the CoSN School District CTO Council

How will the job of the top technology leader in your district change in the next five years? What skills and understanding will you need in order to fill the role successfully in the year 2012?

Growing Technology Needs ...

“Be careful what you wish for,” might be advice that today’s harried CTO should have heeded a few years back as we dreamed of a time when technology would be integral to all aspects of district

“Among the senior executive roles in any company, arguably the role of the CIO has undergone the most change and evolution over the past two decades,” write the authors of *Grooming the 2010 CIO*, a publication by the Society for Information Management (SIM). This point of view has been elaborated in the past year by many publications focused on IT leadership in the business and higher education worlds – along with numerous looks at how dramatically the CIO role is likely to change, yet again, in the next half decade.

Although far less has been written about it, this holds just as true for K-12 CIOs/CTOs. Which is why CoSN’s K-12 CTO Council set out to create this monograph. Aided by a review of recent articles from both the business and education press (see Literature Review sidebars), input from Apple’s director of IT and Learning Structures for Education, Gordon Shukwit, and information exchanges within the council about our own evolving jobs and experiences, we have developed this profile of what might be expected of the K-12 CTO (our generic term for a top-level district technology leader) by the year 2012.

In the pages that follow we will focus on two main areas. First we will address the transformation taking place in the technology world and the ways in which IT needs and job descriptions are changing as a result. Then we will take a closer look at the other aspects of the CTO job that are evolving, expanding and becoming ever-more crucial to the role of the K-12 technology leader of tomorrow.

operations and widely embraced by members of the school community. In many districts today, education technology is everywhere – from interactive whiteboards in classrooms to handhelds used by teachers and principals for assessment, from notebook computers in the hands of students to web sites that family members rely on daily for information about grades, homework and schedules.

The number of devices owned by schools has multiplied, as have the applications educators and students are using on a daily basis. While not all schools and districts have moved fully into the digital age, those that have are not likely to turn back. Desktops, laptops, tablet PCs, handhelds, graphing calculators, digital cameras and camcorders, microphones, audience response “clickers,” white boards and projection devices, wired and wireless networks are just some of the hardware components in use for instruction today – not to mention all the technology involved in record-keeping, accountability, payroll, and the many other enterprise needs of a school district.

And then there are the hardware devices the students bring with them to school every day: their cell phones, MP3 players, computers, game machines and more. To whatever degree the district chooses to tap into student excitement about these devices – to build them into the education program rather than shut them out – they need to be factored into the technology picture and made to work, in a safe and secure way, within the existing infrastructure.

Needless to say, the plethora of hardware and software options adds to the maintenance and customer support demands on the district IT staff. And these demands are becoming ever more urgent as the users within the district become increasingly reliant on the technology. According to Sally Bair, district technology facilitator for Pennsylvania's Northern Lebanon School District, who leads a team of three full-time employees tasked with supporting 2541 student users, 332 staff members, and 1900 technology devices, "I see understaffed school district tech teams being crushed by the volume of work that exists today. End users are much more prone to losing their composure today than a few years back when the Internet goes down or someone can't respond immediately to their support request because they are feeling incredible pressure to produce, regardless of what they are producing. Adequate bandwidth and technology resources that are easy to use and work consistently are paramount to meeting leadership expectations, supporting the professional work performance of faculty, and improving the educational performance of students."

... Shrinking Staff

Despite expanding technology demands, there are few signs that IT head counts will be growing any time soon. In fact, in the business world, just the opposite is happening. The research company Gartner predicts that, "By 2010, IT organizations in midsize and large companies will be at least one-third smaller than they were in 2000" and that 30 percent of top performers now working in-house will have gone to work for outside IT vendors and service providers.

In his book *The Big Switch: Rewiring the World from Edison to Google*, Nicolas Carr predicts an even more dire fate for IT professionals: "In the long run, the IT department is unlikely to survive, at least not in its familiar form. It will have little left to do once ... business units and even individual employees [are] able to control the processing of information directly, without the need for legions of technical people."

While few schools today could be accused of having "legions of technical people" on staff, budget constraints are likely to keep the typical district from expanding its IT department to any great degree—something that concerns district technology leaders like Bailey Mitchell, chief technology and information officer for the Forsyth County Schools in Georgia. "K-12 staffs tend to be bare bones already," he says. "The support model can be very challenging; ours is just adequate for supporting what

the district provides now, without even adding the new devices we're purchasing and those that our students are bringing from home. As consumer devices come into the school, the CTO doesn't own all the services any more. With this shift in control, students will have to take on more responsibility for the technology they use in school."

The solution, according to Gordon Shukwit, is likely to involve simplifying and outsourcing. "The Maine Learning Technology Initiative (MLTI) provides an interesting model," he explains. "Even though the program involves 55,000 laptops, they have a small IT staff. Instead, they're simplifying things. For example, they have a single image, with the same basic applications, for all the laptops. The applications they offer are 'Web 2.0-style' tools such as wikis and blogs that have a lot of flexibility and allow for ad hoc collaboration."

While districts are understandably cautious about outsourcing to companies that might not understand the K-12 market, many are finding outside solutions that work for them without compromising security or control. As Shukwit puts it, "Part of your job as CTO is to know where to turn when you don't have in-house knowledge in a particular area. This is especially helpful when you're transitioning and only need temporary assistance. A third party provider can help with some of the standard things involved in transition and redeployment."

In the Northern Lebanon School District, outsourcing has helped with data backup and technology support. "We now have a reasonably-priced, off-site backup system in place," says Sally Bair. "For years, we had staff members take tapes out of the buildings so we risked compromise or loss of data. Now, our vendor has a backup of our backup, plus we have an archive that is very easy to use for searching and retrieving. We also use an online provider for our support system. We've processed more [help request] cases more quickly than ever before. We document our response to each case and track it so that we have a repository that we can search and use to create reports on such things as how many cases were opened and how much time and money we spent solving each one."

Using students to help with testing and support is another approach employed by understaffed districts. Shukwit describes a program in Southgate, Michigan, which recently rolled out a new Web-based solution for collaboration. "They set up pilot classrooms where students were able to test out the new tools and then help with the rollout. It was management software, not the sort of thing you'd expect students to get excited about, but

..... Literature Review: The Business Perspective

The following articles, while focusing on the job of a corporate CIO, have a lot of relevance for K-12 district technology leaders.

Grooming the 2010 CIO

by Ritu Agarwal and Cynthia Beath, Society for Information Management (SIM), 2007

This article, which focuses on best practices for developing CIO candidates within companies, also does a thorough job of analyzing the evolving role of the CIO.

As in earlier SIM reports, it makes it clear that the CIO needs to fulfill multiple roles including “strategist, leader, information steward, relationship architect, integrator, educator, utility provider.” The authors contend that, of these multiple roles, the following “demand side” ones are increasing in importance:

- **Relationship architect:** Developing relationships with key business leaders inside the enterprise – using both formal mechanisms (e.g., executive councils and steering committees) and informal ones

(e.g., one-on-one relationships) — and externally with key IT services providers.

- **Strategist:** Playing an active role as an “innovation catalyst” and working with business peers in discovering opportunities for leveraging IT in innovative business models, customer relationships, and the pursuit of agility.
- **Leader:** Taking responsibility for leading, designing, and governing the IT organization – including making sure it has the right staff with the inspiration to contribute to the organization’s mission and achieve their full potential.

While acknowledging that “the CIO must have sufficient technical depth and knowledge

to be a credible leader” and be able to “identify and appoint appropriate deputies ... to oversee the tactical activities of the IT organization,” the article contends that “supply side” capabilities such as knowledge about IT and technology project management skills are decreasing in importance.

“Overall,” according to Agarwal and Beath, “the 2010 CIO is envisioned to be more of a business expert than a technical expert, ... a leader rather than a manager [with] a notable ‘presence’ in the business and in the top management team.” Many experts believe the same will be true of the K-12 CIO/CTO who, in many districts, have come to play an increasingly important cabinet-level role.

The Evolution of the CIO

by John Soat, InformationWeek, Nov. 17, 2007

This article includes the following points about the evolving role of the business CIO:

- Between 2006 and 2007, the number of CIOs reporting directly to the company CEO dropped dramatically (from 45 to 31 percent) – indicating to some that the CIO’s influence is waning. In part, this is because of the perception of CIOs being “at best order takers and at worst control freaks.”
- This apparent trend could be merely a blip since InformationWeek’s own survey data shows that 41% of C-level executives say the influence of the CIO at their company is on the rise, while 40% say there’s no appreciable change, and 19% say that influence is declining.

- Regardless of whether the typical CIO is gaining or losing status, business executives are increasingly “aware of new technology trends and eager to have their companies embrace them.” The only question is whether the person leading the change will be a technology expert or a business leader.
- With the “democratization” of technology, Soat points out that there’s the possibility of change happening ad hoc, with each department choosing solutions that appeal to them and an “integration nightmare” that the CIO is left to clean up.
- The article ends by wondering whether CIOs will “stay where they are, consolidating data centers, maintaining applications, and managing server boxes, instead of leading business-process

change through technology innovation.” Noting that the change agent role needs to be filled by somebody, Soat asks, “But if not by the CIO, then by whom?”

Substitute the word “education” for “business” and “superintendent” for “CEO” and you quickly find parallels to the K-12 world, where many technology leaders find themselves at a crossroad. With policy makers and district administrators increasingly acknowledging technology as a mission-critical tool, the school CTO has the potential to play a crucial cabinet-level role in the district – but only if he or she is viewed as a visionary change agent who understands the educational needs of the district as well as the strengths and limitations of the technology being considered.

How IT Departments Can Learn to Say Yes to End Users

by Laurie M. Orlov, CIO.com, November 15, 2007

With today’s employees “want[ing] what they want, whether or not it’s within policy and plan,” Orlov points out that the old ways of saying “no” – with “it’s our policy” or “that’s our plan” – are no longer acceptable. Instead, the article examines four ways of getting to “yes”:

Energize a curious culture: The CIO of a global talent management firm provides an example: “We have a lab where our team – from the help desk to the web folks – is encouraged to spend as much as 10 percent

of its time figuring out if there is commercial benefit to something [new] and doing a proof of concept if so.”

Create a common language: “Like any foreign language,” Orlov writes, “the technobabbling of IT – Web 2.0 this, SaaS that, SOA those other things – creates frustrating barriers.” Noting that having their own language once gave IT professionals power over others, the author concludes that this lingo now makes them weak.

Push your staff out of its comfort zone:

“Make sure that as many people as possible from all levels of our organizations spend as much time as they can with end users,” Orlov recommends. “Send them into the field.”

Learn how to sell: “Being able to sell your services is an essential (and often missing) ingredient for IT organizations to move from a baseline of saying no to being capable of saying yes.”

they did and that made the teachers want to use it. In Maine, the MLTI has very active “iTeams” where students are assisting educators and their peers. Much of the support is student directed and comes out of their own ideas, their growing levels of expertise and a desire to share what they know.”

The Benefits and Pitfalls of Centralization

In an introduction to the *Educause Review* article “The Organization of the Organization: CIOs’ Views on the Role of Central IT,” Shelton Waggener describes the recent trend in higher education toward decentralization: “As hardware and software became cheaper and more powerful, the organizational pendulum swung away from a reliance on the mainframe to a model that emphasized local control and independence. ... The explosion of technology that followed – beginning with client/server solutions and continuing with the expansion of the Internet, open-source software, and now the Web 2.0 world of mashups – has continued to move IT further away from the original vision of a central IT group providing technology to solve campus research, administrative, and academic problems.”

For those familiar with the early days of K-12 computing, the pendulum in elementary and secondary schools has actually swung more than once. Unlike colleges and universities that began with a centralized mainframe model, most K-12 schools got their start in the digital world through a grassroots movement involving educators who were excited enough about their Commodore 64s, TRS-80s, Apple IIs and other early computers to cart them to school – or use discretionary funds to buy school versions – and plug them in for students to use.

Over the years, as networking and interconnectivity became essential and technology uses more widespread, most K-12 technology leaders came to embrace some form of standardization and centralization. They did so for the same reasons Janice Richards, pro-vice chancellor for information services at Australia’s Griffith University describes in the *Educause Review* article cited above:

- It allows IT leadership to align purchasing and implementation decisions with the organization’s overall priorities and goals.
- It’s cost-effective, allowing important economies of scale.

- It can facilitate better service – with a single help desk that can respond to wide variety of users, fewer applications and devices on which end-users need training, and fewer overall problems caused by conflicts between incompatible systems.
- It offers IT staff the ability to specialize and develop valuable expertise.

Add security/safety mandates and concerns to the picture and you understand the intensity of the pressure on K-12 CTOs to centralize and control what happens with IT in the district. And yet, the pressures to decentralize and “democratize” technology are enormous as well, says Case Western Reserve University CIO Lev S. Gonick, another contributor to the *Educause Review* article. “The forces of consumerization associated with Web 2.0 are immutable,” he writes. “Central IT can brace itself for a civil war, or central IT can get out in front of the curve.”

The forces Gonick refers to are as powerful in K-12 as elsewhere in our society. As members of the school community become more comfortable with technology, many of them are determined to make their own decisions about hardware and applications. In this setting, the typical district CTO – just like the business CIO described in the quotes below – is too often viewed as “Dr. No.” Here’s how Laurie M. Orlov puts it in “How IT Departments Can Learn to Say Yes to End Users,” an article posted at CIO.com: “To do the job has historically meant finding ways to keep smiling and still say no: We can’t, we shouldn’t and we won’t.”

Or as one expert is paraphrased as saying in the November 17, 2007, issue of *Information Week*, “IT vendors [are now] pitching their products to the people who use the technology, not to the fool who’s keeping them from using it.”

Learning To Say Yes

Of course, it doesn’t have to be that way. Bailey Mitchell warns his fellow CTOs that, “If we are not careful, we’ll be pigeonholed as control freaks who think we are one step lower than God. However,” he adds, “if we are wise, we can greatly influence many aspects of a school district’s work in a positive way.”

One way of finding a balance between centralization and democratization is to approach enterprise and educational solutions differently. As yet another university CIO, John

..... Literature Review: The Word from Higher Education

Although many of the details and examples in these two articles are specific to post-secondary education, the issues and trends will be recognizable to today's K-12 CTO.

The Organization of the Organization: CIOs' Views on the Role of Central IT

Educause Review, November/December 2007

Spurred in part by Wall Street Journal columnist Walter Mossberg's comments (in a speech to higher education presidents) about IT departments at large organizations being "the most regressive and poisonous force in technology today," thirteen college and university CIOs and vice-presidents weigh in about the pros and cons of centralized IT. Some interesting excerpts:

Janice Richards, Pro-Vice Chancellor for Information Services, Griffith University, Australia: "Centralization facilitates an enterprise approach to the provision of IT infrastructure, systems, and services rather than a fragmented, localized approach. It can deliver benefits not only in terms of technology, people, and processes but also in terms of services to students and staff."

John A. Bielec, Vice President for Information Resources and Technology, Drexel University: "At Drexel, we realize that there are dozens of innovative IT applications knocking at the enterprise door. The challenge is how we can facilitate letting them in. Applications such as online file-sharing, blogging, social tagging, IM and chat, wikis, social networks,

and massively multiplayer online role-playing games (MMORPGs) are an integral part of the daily IT experience for many faculty and students.... IT leaders who fail to recognize and facilitate use of these third-party applications and who insist on being the only source of institutional technology will find themselves in an uphill battle."

Lev S. Gonick, Vice President for Information Technology Services and CIO, Case Western Reserve University: "The community of CIOs has often been seen as a barrier to the impulse for collaboration and innovation.... We need to demonstrate our thought leadership, our organizational agility, and our willingness to keep our customers' needs front and center in what will be a hybrid and converged set of offerings using centrally enabled platforms and tool sets, along with applications that will continuously and ineluctably move to the edge and closer to the individual customer/student/faculty/staff."

Shelton M. Waggener, Associate Vice Chancellor and CIO, University of California, Berkeley: "It is time to shift the dialogue to considerations not of which is better,

centralized or decentralized, but rather of what changes need to occur to provide support for communal technologies.... A retooling of the IT supply skill set will be necessary to ensure that campus IT departments not only can build and run the best solutions when needed but also can make the tough decisions about what not to build and run but rather to provide through partnerships."

Richard N. Katz, Vice President, Educause: "There is a deep literature that makes the case that on balance, decentralized approaches are best suited to organizations where innovation is the primary objective, whereas centralization is best where efficiency (capturing economies of scale and scope) is paramount. Like pharmaceutical companies and other R&D-intensive organizations, colleges and universities are hybrids. ... [The glue] that will make it possible for us to create rich hybrid services that balance the institution's need to innovate with its need to economize and account for outcomes will be IT governance.... The issue comes down to trust. Do the consumers of IT services (local and central) trust the services and the service providers?"

Winds of Change: Charting the Course for IT in the Twenty-First Century

by Brian L. Hawkins, Educause Review, November/December 2007

The retiring EDUCAUSE president offers ten nautical maxims for effectively steering the "ship" of IT in the years to come:

1. View IT from the Crow's Nest: "Getting caught up in the dailiness of routines could cause IT leaders to lose their vision, their view from the crow's nest – to see the transformative role IT can have on education."

2. Seek Signs of Being on the Right Course: "In navigating any organization, a leader must seek signs of being on the right course." The key to this navigation, Hawkins says, is alignment and shared vision, gained by having a CTO who is a respected part of the senior administration (or "admiralty").

3. Have a Strong Captain at the Helm: While emphasizing the need for strong leadership, he also points out that, "For leaders of all kinds—whether in the IT world or in the corporate world—the biggest challenge is finding a balance between being too far out

front to see a problem and being too far behind to react."

4. Remember That the Crew Wasn't Shanghaied: The CTO/CIO should not assume that the staff is captive – that they will stay around unless you support them and help them grow. There are plenty of other jobs they can go to.

5. Beware . . . There be Dragons: "There is a lack of predictability in the world we live in and a lack of known areas on the maps that we have (or can expect to have in the future). What's over the horizon? ... IT leaders need to take some risks but also need to be careful that these are calculated and prudent risks."

6. Hold Steady in Rough Seas: In turbulent times – such as budget crises – the IT leader must remain steady, with a realistic budget and the ability to defend what is needed.

7. Depend on the Rest of the Convoy: The notion that each campus can provide for its

own IT resources in a self-contained manner is passé, according to Hawkins. New models of support need to be considered and adopted such as teaming up to share resources or outsourcing to a third party that "is working for the best interests of higher education."

8. Navigate by More Than the Stars: Citing another author, he recommends that: "instead of making decisions based on anecdotes, tradition, and stories, as done in the past, IT leaders need to make informed decisions based on data, evidence, and rigor."

9. Navigate to the Correct Shore: "The ninth nautical maxim is to navigate to the correct shore by clearly articulating a mission and defining how success will be measured."

10. Know When the Ship Passes: "Change is a given," concludes Hawkins. "And education leaders need to be flexible enough to know when to get on board and when the ship has passed and it's time to move on to a new one."

Bielec of Drexel University, writes, “On one end of the continuum are the individual initiatives that form the heart of the academic, intellectual enterprise; at the other end are the mundane, enterprise IT initiatives that are core to today’s college and university business.”

In Gordon Shukwit’s opinion, these “two sides of the house” are as different in K-12 as they are in higher education. “Both environments need file storage and access but they differ totally – by almost 180 degrees – when it comes to things like permissions, file-sharing and collaboration. Business groups such as accounting or food services are functional driven with their roles and tools not changing often. On the education side of the house, it’s highly interactive, collaborative and ad hoc, with social groupings changing all the time. It requires a structure that allows ad hoc flexibility.”

While these differences present challenges to district leaders who have to manage both spheres, there’s an opportunity here as well – to apply a more centralized, locked-down approach to the enterprise side of the business while working on secure ways of welcoming innovation and choice on the educational side. In the *Educause Review* article Bielec describes an approach that makes extensive use of third-party software by faculty and students: “Rather than resist the use of such applications or insist that they must be run in-house, we have embraced and will facilitate their use in what we describe as an always-beta ‘sandbox’ environment. ... Faculty can now take on the role of experimenters and innovators in a non-production environment while the IT organization assumes the additional role of working with the many third-party vendors to streamline use (i.e., eliminate the administrative burden) and improve access to the sandbox environment.”

Jeffrey L. Hunt, director of instructional technology for Indian Prairie School District 204 in Illinois, agrees that the school CTO needs to help create such sandbox experiences for students and teachers. “With so many free resources on the Internet – with video streaming, blogging, wikis, and more – the power has shifted to the user. The user can go to Google to create a collaborative group or to Ustream to produce online professional development. We need to be offering these tools rather than rejecting them. We need to help schools get their hands on Web 2.0 technologies in a safe environment that allows students to make mistakes without creating a permanent record out there on the public Web. We need to support the idea of developing curriculum using high-quality digital content

that takes the place of textbooks or other outdated materials.”

But how do we find the resources to support such an all-encompassing approach? Only, according to some CTOs, by enlisting help from the end-users who are benefiting from the freedom. In the business and consumer worlds, we are seeing a shift to a “self service” model in which individuals are given more responsibility for supporting their own technology. This might involve having new employees download and install their own software from an array of online choices offered by their company or consumers using self-serve kiosks to reset malfunctioning computers and get them running again. “We need to have simple systems like this in K-12 education and elsewhere,” Shukwit says, “because there’s not the time or support for complicated troubleshooting.”

Bailey Mitchell agrees. “Too often departments get excited about an application, ask for it be implemented and then lose interest. With the new model, departments are asked to take ownership of their own IT needs. If they choose to adopt a new application, they need to take the lead on managing it and convincing teachers in their department to use it.” Mitchell adds that his Georgia district has taken a similar approach with a Citrix Gateway implementation that allows students to access the school district’s network and resources. “We send information home to families who are interested but they have to read the directions and take responsibility for learning how to use it. It’s more like a commercial software model where we make it available but let the end user take ownership.”

Sally Bair offers additional examples from her district: “We have trained staff to do some tasks that they used to need us to do for them. An example is exporting data from one system and importing it into another. We’ve offered training and provided support materials so we have many fewer requests because staff can do that on their own now. We are piloting making some staff members local ‘admins’ who can install software beyond our image. Along with that freedom comes the understanding that they will learn and support their own software. If the software causes the machine to crash, we will happily return to the most current image state and they will restore the rest. If staff members want to add their own hardware we generally tell them yes as long as they support it totally. If they want to adopt a new application that requires an administrator and time to manage data, we will help bring the system online but let them manage it.”

..... Literature Review: Two Articles on K-12 Leadership

CIOs in K-12 Education Must Demonstrate Political and Interpersonal Skills

by Bill Rust, Gartner, Inc., 2006

This article makes the case that a technology leadership role in K-12 education today requires the political and interpersonal skills that supplement technical and educational skills and abilities. Rust points out that it's important for a CTO/CIO with a goal of contributing as an instructional leader – not just as a “techsmith” – to cultivate relationships with other instructional leaders, including the superintendent. As he says, “CIOs must keep in mind that, although they may love working with boxes and wires and talking technology with techies, the techies cannot approve or fund IT initiatives.”

Some key points:

- **The CIO needs to be politically astute:**

The CTO/CIO may be a technology expert and have experience in the instructional area, but to earn respect as an effective education leader, he or she will have to recognize that “educational leadership is based on relationships and personalities” and learn to be politically savvy – for example, avoiding making foes among the leadership team by offending a member with strong personal and professional ties to the rest of the group. It's helpful to observe how the political game is played,

find out who supports whom and learn how to turn the political process into another means to advancing the IT agenda.

- **Quick turnaround is important:** “Those who concentrate on developing comprehensive and elegant plans in the anticipation of eventually delivering solutions in three to five years but fail to deliver some tangible results within six months,” writes Rust, “will lose the opportunity to establish themselves as action-oriented. It has been said that ‘perfection is the enemy of good enough.’ Learn to deliver quick ‘good enough’ solutions that help others succeed and determine whether those solutions should be perfected over time.”
- **Understand formal and informal decision-making:** “Typically, archaic or even arcane procedures and rules of operation are treasured by school district veterans and, unless understood, will stand as a barrier to getting things done.” Going against these without “enjoying a high level of executive support,” can be problematic, Rust says. However, “as an education leader, the CIO should recognize the importance of peer interaction as part of the informal decision making process and that gaining

approval through the informal process is tantamount to formal approval.”

- **Avoid “tech talk”:** Rust recommends: “When the opportunity arises to talk to other school district leaders, the CTO should stop talking about technology, or at the very least, avoid geek speech. ... School district leaders are not necessarily IT savvy and can mistake the extensive use of technical jargon as an indication of a totally IT-centric view of education that lacks vision for the industry. The CTO's language should convey the fact that you understand that IT is a means to some end.”
- **Emphasize customer service with IT reports:** “Because IT staff in school districts are often treated as technicians, they frequently do not think in business or mission terms. With coaching, CIOs will find that IT teams quickly adapt to customer-focused approaches and deliver extremely high-quality work. One CIO noted that he created a CRM team in IT to focus his staff on the notion of ‘customer’ or ‘constituent’ and made it clear that the most business-focused staff members would be recommended for promotion. The approach proved successful.”

In Praise of Top-Down Leadership

by Richard Dufour, *The School Administrator* (published by AASA), November 2007

Although aimed primarily at district superintendents and principals, the observations in this article are applicable to CTOs – and aspiring CTOs – who accept that their role is at least as much about leadership as it is about technology.

Dufour writes: “The term top-down is uttered with disdain, a pejorative phrase... In the ongoing debate of the efficacy of top-down versus bottom-up strategies to improve school districts, top-down is clearly losing.” And yet, he contends, the danger of waiting for consensus is that the majority can frequently be wrong, that people often resist change and ignore what is clearly best practice. He shares a number of examples of proven best practices – including the creation of professional learning communities to

support teachers and the use of formative assessment to help teachers check for student understanding on an ongoing basis – and argues that “leaders must be prepared to insist those within their organizations heed, not ignore, clear evidence of the best, most promising strategies for accomplishing its purpose and priorities.”

The author does not advocate an autocratic approach to leadership; he feels that people too often equate this with top-down leadership. Instead he argues for a “loose-tight” model that “fosters autonomy and creativity (loose) within a systematic framework that stipulates clear, non-discretionary priorities and parameters (tight).” In this model, district leaders clearly lay out their expectations and then support

– through professional development and other follow-through – the efforts of the school community to implement them.

Dufour offers sound advice when he states that, “a professional does not have the autonomy to ignore what is regarded as best practice in the field.” The CTO must be one of the district's leaders working to build capacity and help students learn. Dufour directed those phrases to a different audience, but the CTO would be well advised to demonstrate leadership by considering best practices in the field, “build[ing] continuous improvement processes into the routine practices” and “demonstrat[ing] fierce resolve and consistent commitment to a sustained direction over an extended period of time.”

The CTO as an Administrator and Leader

So far we have looked at the challenges faced by the CTO/CIO in his or her role as an IT leader for a district. But a K-12 CTO's responsibilities involve much more than technology. And experts predict that a few years from now the IT part of the job will be considerably less important than it is today.

In *Grooming the 2010 CIO*, the Society for Information Management predicts that, for the corporate world, “by 2010, business and IT will be fundamentally entwined and interdependent” and the CIO will be a “full-fledged member of the top management team, expected to weigh in on discussions and decisions that have nothing to do with IT.”

A number of other pundits agree that tomorrow's CIO/CTO – whether in industry or education – will be less of a techie and more of a business or education leader. In K-12 districts, of course, this is only possible if there is adequate staffing, allowing the CTO to serve as a cabinet member and delegate IT implementation to a highly qualified technology expert. Luke Fox, executive director of IT for Richland County School District One in South Carolina, explains, “I advocate having a CIO reporting directly to the superintendent with three executive directors – responsible for research and accountability, IT, and instructional technology – reporting to the CIO. I believe this allows the CIO to leverage all related technology for strategic district goals.”

According to Bev White, CTO for the Wake County Public Schools in North Carolina, who works with CoSN on providing support for district CTOs, “What I'm seeing as I read and talk to people is that ‘business leadership’ is increasingly important to the district as well as to the success of the CTO. If you think about CoSN's Framework of Essential skills, it presents a mix of leadership skills (such as vision or team building) and management skills (involving the execution and implementation of various technology systems). The trend is towards having the CTO delegate the management functions to allow more time for leadership.”

Gartner's Bill Rust describes these two sets of complementary skills and attributes as soft and hard, or yin and yang – with the technology expert needing the hard (yang) skills and the CIO requiring the yin skills of leadership and vision. While he thinks that both leaders have a crucial role to play, he recommends that the cabinet-level CIO/CTO should be the one with the soft skills. In *CIOs in K-12 Education Must Demonstrate Political and Interpersonal Skills* (summarized on the previous page) he

... Critical Leadership for the K-12 CTO....

Paul Sims, assistant superintendent for technology services at the Clarke County School District in Georgia, offers the following tips for district technology leaders:

Gain Strategic Understanding

In order to fully leverage the value technology can provide to your district, a CTO needs to gain knowledge about school operations (including instruction, assessment, finance, facilities, etc.) and what keeps the superintendent, your executive colleagues and principals up at night.

Build Trust: If you want people to be prepared to move in a direction they may not be totally comfortable or familiar with, it is important to: listen, follow through on what you say you'll do, admit your mistakes, empower others, and provide value.

Communicate Vision: Technology is all about charting new territory, and vision—including seeing the future and making people want to go there with you – is a must!

Exhibit Courage: As a technology leader, you bear the risk related to championing and implementing new ideas, particularly in the early stages of a district embracing technology. Without courage you will limit the value technology can provide to the organization.

Execute Well: It is essential to use good planning methodology, communicate constantly with stakeholders, have high expectations for your team, and focus on learning from your mistakes and improving the quality of your work.



elaborates on the personal leadership skills that he believes are crucial to a district's top technology leader.

According to Jeffrey Hunt, an important part of that leadership job involves facilitating communication across groups about the role technology will play in meeting district goals. “The idea is to be an internal consultant,” he says, “to listen to the needs, goals and challenges of the district's departments and schools and determine through collaborative leadership the means to resolve issues.”

Ramona Tyson, associate superintendent, management information systems, for the DeKalb School System in Decatur, Georgia, offers an example: “As an IT department, we had to get out of our offices and come from behind the nuts and bolts of technical operations and get into departmental meetings. It meant listening to their challenges and finding ways, through

.....CoSN's Role in Preparing CTOs for the Year 2012

As a voice for K-12 education leaders who use technology strategically to improve teaching and learning, the Consortium for School Networking (CoSN) offers a variety of resources to help prepare K-12 CTOs for their future.

CoSN's Framework of Essential Skills for District Technology Leaders

CoSN's School District CTO Council, made up of members who serve as technology leaders for their districts, has developed a framework, with the following nine categories, to help school CTOs understand the key skills they need to succeed:

- (1) Leadership and Vision
- (2) Planning and Budgeting
- (3) Team Building and Staffing
- (4) Systems Management
- (5) Information Management
- (6) Business Leadership
- (7) Education and Training
- (8) Ethics and Policies
- (9) Communication Systems

A variety of CoSN publications and professional development offerings are built around this framework, which is described in more detail at: http://www.cosn.org/resources/cto_council/framework.cfm

State Chapters

CoSN has state chapters to help district technology leaders with their professional development and professional connections. Current state chapters exist in California, Colorado, Georgia, Louisiana, Maryland, New Mexico, Pennsylvania and Texas. Learn more at: www.cosn.org/chapters

CoSN Annual Conference

CoSN's annual national conference is the premier U.S. technology leadership event dedicated to policy and effective implementation from the school district, state and national perspectives.

CTO Leadership Forums

CoSN holds leadership forums for district technology leaders at the following national education technology conferences: NSBA's Technology + Learning Conference (T+L2), the CoSN Annual K-12 School Networking Conference, and the National Education Computing Conference (NECC).

CTO Clinics

Several times each year CoSN conducts in-depth regional clinics (www.cosn.org/chapters/CTOClinics) for district technology leaders interested in networking with colleagues and staying on top of emerging technology trends

Internet & Education Webcast Series

This exciting professional development series, involving 60-minute interactive presentations conducted over the Internet, is designed for school district leaders and offers guidance on key challenges and opportunities in education technology.

the use of technology, to assist them in meeting their goals and objectives. They became our advocates in securing funding because they knew we were problem solvers with a true interest in partnering with them to improve teaching and learning.”

Of course, leadership skills are needed for internal team building as well – to support and develop expertise within the departments that report directly to the CTO.

Greg Davis, executive director of technology for the Des Moines Public Schools in Iowa, advocates taking a distributed leadership approach to building leadership capacity – a concept that he’s currently elaborating on in his doctoral thesis work. “The main message,” he explains, “is that CTOs don’t have to be the sole source of technology leadership in the district. It’s far more important for the CTO to be skilled at building leadership capacity and able to fill the gaps in ed tech leadership in the organization. The more ‘domineering’ a CTO is, the less likely it is that the district will be able to sustain its technology initiatives when that CTO leaves.”

Other capacity-building suggestions include the following from Bill Rust: “Single out individuals who are well-motivated — and who, perhaps, have real star power— and get them involved with your agenda. Point out successes and relate them to the educational goals of the school system, even if they occur outside the realm of your immediate responsibility.

Recognition programs can be extremely effective, even when no monetary award is attached.”

Postponing Obsolescence

In this digital age, with technology changing and information multiplying at light speeds, it’s hard to imagine being able to keep up with it all. Today’s urgent need to increase bandwidth to K-12 campuses in order to allow them to take advantage of the technologies available to them is just one example of an IT trend that is moving faster than most could have anticipated just a few years ago.

The job of the CTO and other district leaders requires the ability to look ahead and anticipate the ways in which technology will continue to evolve and future breakthroughs will impact teaching and learning. The goal is to stay current, to postpone technology obsolescence. As we do so, K-12 CTOs would do well to focus on the evolution in our own roles and what it will take to avoid personal obsolescence as job descriptions and expectations morph and grow. Understanding the “business” of the district – that is, the learning that we need to ensure takes place – and continuing to develop the vision for how technology can shape that in a positive way is key to “future-proofing” our roles and offering lasting value to our schools and districts.

This publication is one of six monographs that make up the 2008 CoSN Compendium, a collection of resources for members of the Consortium for School Networking (www.cosn.org) a national non-profit organization that promotes the use of information technologies in K-12 education to improve learning. Additional copies can be ordered online at www.cosn.org/resources/compendium.

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